



ABSTRACT

A method and apparatus which employs a unique optical configuration that allows accurate determination of 5 concentrations of various hemoglobin species contained within a sample of whole, undiluted blood. A plurality of measuring radiation wavelengths are chosen where radiation absorbance is much greater than radiation scattering in whole blood. A sample of whole, undiluted blood contained 10 within a very thin cuvette is irradiated with the selected measuring radiation frequencies, and radiation transmitted through the sample is collected by a large area detector. This minimizes the effects of radiation scattering, and allows the Beer-Lambert Law of absorption spectroscopy to 15 be used to accurately calculate the concentrations of various blood constituent components contained in whole, undiluted blood.